DOCUMENT RESUME

ED 135 224 FL 008 379

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TITLE The Development of the Full Passive.
PUB DATE 1 Oct 76
NOTE 37p.; Paper presented at the Boston University Conference on Language Development (Boston, Massachusetts, October 1976)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Child Language; Grammar; *Language Development; Language Research; Learning Processes; *Psycholinguistics; Semantics; *Sentence Structure; *Syntax; Transformation Generative Grammar; *Transformations (Language); *Verbs
IDENTIFIERS Passives (Verbs)

ABSTRACT

Spontaneous full passives and related constructions from 234 children aged 2;0 to 13;11 and elicited passives from 262 college students were analyzed. Full passives were classified as reversible (The dog was chased by the girl), instrumental non-reversible (The lamp was broken by [or with] the ball), or agentive non-reversible (The lamp was broken by the girl). The agentive non-reversible did not appear until after age 9; and until age 11, no child produced both reversible and non-reversible passives. All the children used the passive in a semantically restricted way, but not in the same way. The possible developmental course of the full passive was traced for children who initially used only reversible passives versus those who initially used only instrumental non-reversible passives. From this study, the following conclusions can be drawn: (1) language acquisition is not complete by middle childhood; (2) individual differences exist in language learning "strategies"; children use analogy to learn grammatical rules; (3) the relationship between comprehension and production is complex; and (4) the distinction between semantics and syntax is often arbitrary. (Author/AM)

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The Development of the Full Passive[1]

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[1]Presented at Boston University Conference on Language Development
October 1, 1976

ABSTRACT

Spontaneous full passives and related constructions from 234 children aged 2;0 to 13;11 and elicited passives from 262 college students were analyzed. Full passives were classified as REVERSIBLE (The dog was chased by the girl). INSTRUMENTAL NON-REVERSIBLE (The lamp was broken by (or with) the BALL), or AGENTIVE NON-REVERSIBLE (The lamp was broken by the GIRL). The Agentive non-reversible did not appear until after age 9; and until age 11, no child produced both Reversible and Non-reversible passives. All the children used the passive in a semantically restricted way (but not in the same way). The possible developmental course of the full passive was traced for children who initially used only Reversible passives versus those who initially used only Instrumental non-reversible passives. (Add theirs)

THE DEVELOPMENT OF THE FULL PASSIVE[1]

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Among syntactic transformations, the passive transformation has been called "the Grandaddy of Them All" (Ross 1974: 64). Beilin (1975) refers to it as a model case to test alternative theories. It was relied on by Chomsky (1957) as an obvious support for transformational grammar. It was central to Katz and Postal's (1964) argument leading to the reformulation of generative theory in terms of meaning-preserving deep structures. In the "extended standard theory," Chomsky (1972) once again uses the passive as a basis for major revisions. The passive was central to traditional grammar as well, and was also used by Yngve (1962) in support of his depth hypothesis. But despite its linguistic prominence, passivization is far from completely understood (Lakoff 1971).

The study of children's passives has been almost exclusively confined to comprehension and imitation tasks. Bandura & Harris (1966) and Whitehurst, Ironsmith, & Goldfein (1974) have used passives to see if modeling or reinforcement could affect the frequency of passive usage. Studies of children's spontaneous speech have located so few passives (almost all truncated) that very little is known about the acquisition of passive production. Harwood (1959) for example, found no instances of full passives in over 12,000 utterances of five-year-old children. Not only is the passive infrequent in child language, but it is also infrequent as input to children: Brown (1973) found no full passives in the samples of the speech of the three sets of parents he studied (713 utterances in each set).

It therefore seems important to inquire into the origins of such a central linguistic construction. Its infrequency and complexity make it a challenging target for observational study and interpretation. If children develop their own rules or "strategies," then such a complex and infrequent construction might lead to interesting deviations from adult usage.

METHODS

The data come from three sources. The data for the youngest children and the adults were gathered by the author. The data for the older children were collected and coded by Wepman, Hass, and their associates at the University of Chicago in the mid-1960's.[2]

Group I. Fifty-four children, between the ages of 2:0 and 4:2, were asked to describe simple pictures. Each child was tested twice, at an interval of three months. Exactly the same procedure was used at each of the two sessions. The procedure, carried out individually with each child in his/her home, consisted of four parts. First, the child looked at pictures while the experimenter read simple descriptions. This was a "warm up" session and served to model the child's task. The sentences used in this section did not present any unusual syntactic structures; all were simple, active, affirmative, declarative. Examples include: The boy's taking a bath, The flower is pretty, Daddy talks on the phone, The children are building a snowman. The second part provided the major source of data. The child was asked to describe each of a series of forty-four pictures. The pictures represented a wide range of situations: for example, agents were both animate and inanimate, objects were both animate and inanimate, agents were missing from some pictures, and the focus was on different objects (this was accomplished by having one object in the picture colored--the agent, the object, or the instrument). Some pictures were semantically reversible: i.e., either noun

could logically be the actor or the object as in a picture of a girl chasing a boy. Other pictures were non-reversible, as in a picture of a girl kicking a ball. The third part of the task was a vocabulary check of the objects depicted in the previous part. The final part was a comprehension task.[3]

Group II. One hundred and eighty normal children (15 boys and 15 girls at each of the following ages: 5, 6, 7, 9, 11, and 13) were asked to tell stories about TAT pictures. Also included in this sample were 30 mentally retarded children, 19 language-delayed children, and 19 brain-injured children, all between the ages of 5 and 13.

Group III. Two hundred and sixty-two undergraduates enrolled in child psychology courses at Northern Illinois University were asked to describe a picture using a simple passive sentence (no examples were given). Ss saw one of two pictures: A broken lamp with a ball nearby and a girl standing by (+agent), or the same picture without the girl (-agent). Ss were then given a picture with a fill-in the blank sentence. Each S saw one of two pictures: a broken window with a ball nearby and a boy present (+agent) or the same picture without the boy (-agent). Under the picture, was one of the following sentences:

The window was broken_____the boy.

The window was broken_____the ball.

Scoring criteria for full passives. A sentence was judged as a full passive if it contained a form of 'be' or 'got', a past tense marker, and a preposition followed by a noun phrase that could logically be construed as the actor or instrument. The following prepositions occurred in full

passives: 'by', 'with', 'from', 'for', and 'of'. Thus (1) through (5) were scored as full passives, while (6) through (10) were not:

(1) They were stopped BY a ferocious animal.

(2) The room was covered WITH bugs.

(3) They got shot FROM Japanese.

(4) The boat was used FOR the boys. (in a story about some boys who used a boat for fishing: no other people appeared in the story.)

(5) The lamp was broken OF the ball.

(6) The boat was left BY the side of the river.

(7) The boy was charged WITH murder.

(8) He got fired FROM his job.

(9) He got punished FOR what he did.

(10) The man was cleared OF charges.

Using these criteria, 81 full passives were identified from the 5 to 13 year old children. The criteria were modified slightly for the younger children: a unit was scored as a full passive if it had at least one formal marker, a preposition, and clearly had the semantic intent of a full passive. Thus (11) through (14) were classified as full passives:

(11) Choo choo train got crashed...By a bus.

(12) Boy hit by foot. (Boy had been kicked)

(13) Broken by ball. (pointing to lamp)

(14) It broken by that.

Thirty-two full passives were identified from the 2 to 4 year old children.

Rationale for excluding truncated passives from the study. This study will deal only with full passives since in these data the truncated passive appears to be a different construction than the full passive. A truncated passive does not express the logical subject. In most grammatical theories, a truncated passive is derived from the full passive by deleting

the logical subject:

(15) The lamp was broken (by the girl).

Such a view is problematic for child language since truncated passives are relatively frequent in child language, while full passives are very rare. The question arises of why the supposedly grammatically simpler form (the full passive) is less frequent and apparently more difficult than the grammatically more complex form (the truncated passive which involves an extra transformation). Recently linguists and psychologists (e.g., Langacker and Munro 1975, Lakoff 1971, and Watt 1970) have suggested that there is no such thing as the passive transformation: that is, active and passive sentences do not derive from the same abstract representation. The instrumental or agentive phrase is derived from some external source. In most of these accounts the truncated passive is constructed like a predicate adjective as in "Sam was happy." Hence the relationship between truncated passives and full passives is not as close as transformational grammarians believe.

The data from the present study support this view. Among the 2 to 4 year old group, the truncated passives had <u>inanimate</u> logical objects--they were about lamps, windows, vehicles; the majority of their full passives, however, had <u>animate</u> logical objects--they were about people and animals. That is, truncated passives and full passives had different privileges of occurence. Most truncated passives used familiar verbs such as 'break' that were also used as statives: children's <u>full</u> passives, however, used a wide variety of action verbs. So the choice of topics and verbs differed for the two constructions. In addition, the truncated passives

of the younger children were almost exclusively an after-the-fact observation on the state of things.

The older children did use a wider variety of verbs in their truncated passives than did the two to four year-olds; many of the verbs, however, could probably be classified as statives (adjectives) and hence are questionable passives:

(16) She got married.

(17) It got broken.

(18) They got lost.

The category 'stative' --referring to a state of affairs rather than to an action, event, or process--may be broader for children than for adults. One very frequent truncated passive (among little boys) is get killed. Do children realize that 'kill' is an action and that 'dead' is the corresponding state? To a child "he was killed" may be synonymous with "He is dead." To an egocentric child, "I got hit" could well refer to the child's state, rather than to the action. If the things we call 'verbs' are really statives (and thus adjectives) to children, then the children's sentences we call passives are not passives at all. In a sentence such as "I got hit", 'got' would be the main verb and 'hit' a predicate adjective as in "I am tired." Thus, the child's view of the world may concentrate more on states than actions. Categorizations of parts of speech, and hence of grammatical constructions, would then differ from adult categorizations. In this case, 'I got hit' could be a passive for an adult and not for a child.

If we look at the frequency of truncated passives and full passives by age, we see little relationship between the two constructions. Figure 1 gives that information. The lack of correspondence supports the view that they are grammatically distinct.

Insert Figure 1 about here

Truncated passives are excluded from this study, then, not because they are not interesting, but because in child language, at least, they appear to be grammatically distinct from full passives. Perhaps at some later point the two constructions are consolidated, but their development appears separate. (See Maratsos (1975), however, for a contradictory result).

RESULTS

Use of prepositions. Table 1 shows the distribution of prepositions used by the children.

Insert Table 1 about here

Table 1 shows that younger children differ from older children in three ways: (1) inanimate NP's follow prepositions more frequently than animate NP's (75% of the younger children's passives had inanimate

logical subjects, as compared to only 30.5% for older children); (2) younger children did not use 'with', yet it was the second most frequent preposition for the older children, (3) younger children used 'from' with inanimate NP's, whereas older children use it with animate and inanimate NP's.

Table 2 summarizes preposition use for the college students.

Insert Table 2 about here

Table 2 shows that adults use 'with' rather than 'by' for instruments more often when an agent is present in the picture than when no agent is present ($p<.05$). Most linguists agree (e.g., Lyons 1968) that 'by' can be used with instruments only if there is no agent in the sentence; if there is an agent in the sentence, then 'with ' must be used for the instrument. Apparently, for some people, having an agent present nonlinguistically (e.g. in the picture) is sufficient for the instrumental usage to shift from 'by' to 'with'.

Types of passives. Within the category of 'full passive,' two main sub-categories of passives can be distinguished:

(1) The semantically reversible passive where either NP could logically be the actor or the object, as in "the girl was chased by the boy."

(2) The non-reversible passive where the above is not true, as in "the lamp was broken by the girl"; *"the girl was broken by the lamp" is a semantically unacceptable sentence.

Two types of non-reversible passives occurred in these data: passives

where the logical subject was an agent and passives where the logical subject was an instrument. "The lamp was broken by the girl" illustrates the agentive non-reversible passive. "The lamp was broken by (or with) the ball" illustrates the instrumental non-reversible passive. Table 3 shows the distributuion of types of passives by age.

Insert Table 3 about here

Table 3 shows that at all ages, the number of reversible and non-reversible passives is about equal. The type of non-reversible passive shows a shift with age, however: no agentive non-reversible passives appear until age 9 ($p<.05$). After age 9, agentive and instrumental non-reversible passives occur in about equal number. No agentive non-reversible passives occured among the language delayed or brain injured children. Further, until age 11, no child produced both reversible and non-reversible passives. This resulted in a number of semantically reversible situations being described in an awkward, non-reversible way by the children who had control of only the non-reversible form:

(19) The man was killed by the hand.

(20) The boy was kicked by the foot.

Among the 11 and 13 year olds, about half of the children produced

both reversible and non-reversible passives. All of the non-reversible passives produced by these children (who also produced reversible passives) were instrumental. Further, all but one of these instrumental non-reversible passives used the preposition 'with.' This suggests that reversible and non-reversible passives are more distinct with regard to surface structure and semantic usage for these children than they are for adults.

DISCUSSION

Although children as young as two can spontaneously produce syntactically well-formed full passives, these data indicate that the semantics of the passive are not fully acquired until many years later. Even the 11 and 13 year old children who produced both reversible and non-reversible passives did not use passives in the full semantic range. Their non-reversible passives did not include agentive passives, yet the agentive passive appears to be quite common among adults. (In the present study, college students chose to describe the picture of the girl breaking the lamp with the ball as 'the lamp was broken by the girl' 48.4% of the time.) The agentive passive was also quite frequent among the children who did not produce reversible passives. Not only did the 11 and 13 year old children with both reversible and non-reversible passives lack agentive passives, but their choice of preposition for instrumental passives differed from adult usage. Adults can use either 'by' or 'with' for instruments, and 'by' appears to be more frequent when the agent is not expressed. The 11 and 13 year old children, however,

used 'with' in all but one instance. For these children reversible and non-reversible passives had distinctive forms and functions: reversible passives used 'by' and an agentive phrase; non-reversible passives used 'with' and an instrumental phrase.

Children apparently do not all acquire the passive in the same way. In the two to four year old group, we saw that some children begin by using only reversible passives, and others by using only non-reversible instrumental passives. Sometime around 9, we see an expanded usage. Some children who produce only non-reversible passives, begin to produce both agentive and instrumental forms. Still later, about 11, some children begin producing both reversible and non-reversible passives. Their use is still restricted, however. These children produce only the instrumental non-reversible passive (the apparently more primitive kind of non-reversible passive.) Even by college age, the passive is not well understood--Table 2 showed many errors in choice of preposition, and 36% of the sentences produced in the spontaneous condition were not passives.

We will discuss reversible and non-reversible passive development separately since they seem to represent different hypotheses on the part of the children as to the semantics of the passive.

The non-reversible passive. In this section, we will consider only those children who produced non-reversible passives.

The younger children's non-reversible passives differ from adult non-reversible passives in two ways: (a) children used only the instrumental passive, and (b) while adults can use 'by' or 'with' with instruments,

children used only 'by'. The children who produced instrumental passives produced no sentences corresponding to these adult uses. That is, no sentences such as (21) or (22) occurred until after age 9:

(21) The lamp was broken by the girl. (agent as logical subject)

(22) The lamp was broken with the ball. ('with' used with instrument)

All the children's passives had the instrument, rather than the agent, as the logical subject and used 'by' rather than 'with,' for example:

(23) The lamp was broken BY the BALL.

In addition to the full passives produced, children produced truncated passives and sentences with surface structures similar to the passive. The following are typical examples of the many such sentences:

(24) That melts from that.

(25) Snowman is melting from the sun.

(26) The girl broke the lamp by the ball.

(27) The ball bounced by itself.

It is possible that the child is forming his/her passivization rule on analogy with such constructions. We will examine this further.

Agent and Non-Agent Causation. Production of instrumental passives seems to grow out of a certain notion of causation on the part of the children. The children treat passives as a way of expressing non-agent causation. By non-agent causation is meant any type of causation other than agent causation; this would include events where the cause is unknown. Exactly how children conceptualize causality is not as important for present purposes as the fact that they do distinguish types of causality linguistically, with the distinction having something to do with agent causation versus other ways of things happening.

This is evident from their early grammatical choice for subjects of sentences. At a very early age, the child realizes that agents are different from other objects in their ability or power to act. Children's earliest grammatical subjects are almost exclusively agents (or action-initiators, such as vehicles) (Bowerman, 1973).

This interpretation is supported by the following examination of related constructions which may be relied on by the children as sources of generalization and contrast. We will see, with regard to reflexives and 'from' phrases, that the child uses this agent/non-agent causation distinction in his grammatical constructions.

Analogies with other constructions. A child might think the passive construction is analogous to another construction because both constructions have similar surface structure and/or similar semantics. Reflexives and sentences with 'from' phrases are good candidates for analogy because of linguistic similarities with the passive. The protocols from the two to four year old children were examined for occurrences of reflexives and 'from' clauses. It was found that both constructions were used in a restricted way--in a restricted way that corresponded to the restricted passive use.

Reflexives and passives. Reflexives and passives are related semantically in adult usage (Lakoff 1971). In English, for example, passives formed with 'get' can also have a reflexive meaning as in (28):

(28) I was hammering and I got hit with the hammer.

Here "I got hit with the hammer" means "I hit myself with the hammer."

Lakoff (1971) argues that universally, a semantic link exists between the 'get' passive and reflexivization. In Romance languages, for example, forms that are morphologically reflexive can be translated into passives, as in (29):

(29) Aqui se habla español.

Literally, this means "Here REFLEXIVE speaks Spanish." The usual English translation would be "Spanish is spoken here." In other languages, a "middle" passive can be interpreted either as a passive or as a reflexive.

Adults can form reflexives with or without 'by' as in (30) and (31):

(30) The ball bounced by itself. (non-agent causation)

(31) Jane hurt herself. (agent causation)

The younger children only used the non-agent type of reflexive--those with 'by.' Further, all their reflexives had inanimate nouns following the 'by' (as did their instrumental passives). The reflexive and the passive are, then, even more closely related in child language than in adult language. The child may think that 'by' is a way to signal non-agent causation in the passive as it is in the reflexive.

The non-agent use of the reflexive may appear first because it is in some sense "easier" despite having an extra morpheme. In the non-agent use, the action occured alone, with no agent as in The ball bounced by itself. The agent use has an extra semantic element: the action was performed and someone did it, as in The man shaved himself.

'From' phrases and passives. For adults, some uses of 'from' phrases are very similar to passivization. Sentences (32) through (35) illustrate

this:

(32) I was given this by Mother. (I am the recipient, Mother is the agent.)

(33) I got this from Mother. (I am the recipient, Mother is the agent.)

(34) The present was sent by Mother. (Mother sent the present.)

(35) The present was received from Mother. (Mother sent the present.)

The fact that 'from' was occasionally used by college students in their passive sentences indicates that the semantic similarities result in confusion. Maratsos (1975) found children substituting 'from' when asked to imitate anomalous passives such as *The cat is licked OF the dog.

The younger children's use of 'from' phrases was restricted--again in a way analogous to their use of passives. They did not use animate agents as objects of the preposition 'from'; that is, sentences such as (36) did not occur:

(36) This present is from Mother.

The younger children used 'from' only in a locative sense (e.g., She's coming FROM school) or in a non-agent causational sense as in (37) and (38).

(37) Snowman is melting FROM the sun.

(38) That broke FROM the wind.

The non-agent use of 'from' may appear first as a result of an analogy with the locative use of 'from.' Things are usually located with reference to non-agents since they are more likely to be stationary. As with reflexives, we see that there are linguistic similarities, and

that the children's use of 'from' is restricted. In all three constructions--passives, reflexives and 'from' phrases,

(a) only a non-agent causational sense is used, despite equally frequent adult use of agent causation.

(b) the noun phrase following the preposition is inanimate, despite equally frequent adult use of animate noun phrases.

These varied facts lead one to believe that the child assumes that 'by' signals non-agent causation and that the function of the passive is more restricted than it actually is. The passive is not viewed as a general way of expressing agent-object relations, but as a way of describing the state of an object or person, and also as a way of designating the thing, but never the agent, causing the state or change in state. These children could reach such a conclusion through their experience with prepositions in other constructions and from their acquaintance with the restricted use of 'by' in reflexives.[4]

Children may also be expressing awareness of the passive as a linguistic device for expressing focus. Many of the instrumental passives were elicited by the "Focus" pictures. Carroll (1958) found, with high school students, that when the focus of attention was directed toward the object of an action, subjects more often described the situation using the passive voice. Children in the present experiment may have been doing the same thing--viz., naming the focus item first in the sentence.

Closely related to focus of attention, is the topic/comment distinction. The passive is one way of signaling the distinction. Hornby and Hass (1970) found that children as young as 4:0 used

contrastive stress to mark the topic or focus. Children's use of the passive in the present study may be further evidence that the child uses linguistic devices before age four to mark focus.

A child might learn to use instrumental non-reversible passives in the following way:

a. The child's earliest distinction among subjects of sentences is agents versus non-agents.

b. S/he uses truncated passives to comment on the state of things.

c. S/he finds out about non-agent causation and discovers there are ways of expressing this distinction linguistically: i.e., with reflexives and 'from.'

d. S/he uses 'from' phrases "added on" to truncated passives to show non-agent causation.

e. S/he finds out about full passives (perhaps learning that their use can reflect focus) and assumes s/he can "add on" to a truncated passive with a 'by' phrase.

f. Since s/he already knows about reflexives, s/he assumes 'by' is the way to signal non-agent causation in passives, too.

Later non-reversible passives. Apparently at some later time--9 years or so--the child then generalizes his passive rule to apply in agentive cases. We have no way of knowing whether the 11 and 13 year olds who produced both reversible and non-reversible passives initially produced only reversible passives or only non-reversible passives. Since the form of their non-reversible passives differed (in terms of preposition

choice) from the children discussed here, it seems more likely that they initially used reversible passives and then added an instrumental non-reversible passive construction to their grammar. They apparently were not basing their rule on an analogy with reflexives since they did not use 'by.'

Adults in this study saw only non-reversible pictures. Their sometimes incorrect and awkward attempts at passive formation reveal attention to some of the same surface structure aspects that children attended to. The apparent saliency of 'by' is reflected in the following sentences:

(39) The girl broke the lamp BY throwing the ball at it.

(40) A girl has broken a lamp BY hitting it with a ball.

(41) The lamp was broken BY the ball BY the girl throwing it.

A past tense marker is also seen as one necessary aspect of a passive, as (40), (41), (42), and (43) illustrate:

(42) The ball had broke the lamp.

(43) The ball had knock over the flower pot.

Adults also were aware of the need for a form of 'be.'

(44) The ball after BEING hit by the girl broke the lamp.

Adults, like children, also saw the passive as a way to comment on an event by adding a phrase of some sort:

(45) The window was broken due to the ball.

(46) The girl broke the lamp when she dropped the ball.

(47) The girl threw the ball that hit the lamp that knocked it over.

Finally, adults saw the passive as a way of changing the normal word order: as in (41) through (45) above, and (48) below:

(48) The ball, that the girl had been throwing, broke the lamp.

Adults, too, seem to be aware of the relationship of type of causation and preposition choice: Given the sentence "The window was broken____ the ball," they used 'with' significantly more often if an agent was present than if no agent was present. Presumably in the first case (+ agent), the boy in the picture, rather than the ball, was seen as the agent, and 'ball' had to be marked as an instrument using 'with.' In the second case (-agent), the ball could be the agent and hence marked using 'by.'

For adults, then, as for children, passives are seen as funny ways of expressing causation that involve use of 'by,' require 'be' or 'get' and a past tense marker. Adults who had difficulties producing correct passives did know at least some of the elements that go into the passive.

Reversible passives. In this section, we will consider only the children who produced reversible passives. Most of the passives produced by the two to four year olds had the word order backwards; that is, they used sentences like "the cat was chased by the girl" when describing a picture of a cat chasing a girl. They had the form right, but the meaning wrong. Other researchers (Whitehurst, Ironsmith, and Goldfein 1974) have noted such 'reversed' reversible passives with children up to age five. (There were no examples of reversed reversible passives in the 5 to 13 year old data--the pictures they were describing did not include such simple reversible situations, however.) For the two to four year olds, there appeared to be no reason for the children to choose

a passive rather than an active sentence--apparently they saw the passive as an alternative way to express agent-object relations in a semantically reversible situation. Their hypothesis shows linguistic progress, however. The children apparently recognized and were attending to grammatical transformations. They were correct in the view that transformations are more or less meaning-preserving and that the passive is an alternative, optional way to express an agent-object relation. In addition, they seemed to recognize reversible situations (and sentences) as a different class from non-reversible ones. The basis for their distinction was probably not semantic reversibility, but perhaps a cognitive notion such as "mutual activity."[5] The youngest children made the single mistake of not realizing that the passive transformation involves a reversal in the word order of agent and object.[6] Children's reversible passive usage is another example of a syntactic rule that applies in a semantically restricted environment: in this case, it applies only to semantically reversible situations.[7]

As children get older, they learn to switch the word order, but restricted application of the passive to reversible situations apparently continues until age 11 or so, when we saw the first cases of the same children producing both reversible and non-reversible passives. As discussed earlier, the non-reversible passives produced by these children are quite distinct in form and function from reversible passives and may be grammatically unrelated at this stage of development.

Reversibility has been found by other researchers (Slobin 1968; Hayhurst 1967; Baldie; forthcoming) to be a significant feature. Baldie found a

marked improvement in the production of non-reversible passives between the ages of seven and eight. Children younger than this produced more reversible passives. Hayhurst found by age nine and a half, that the percentage of correct responses for non-reversible sentences was twice that of reversible sentences. Comparing these results with our data, it appears that the increase in use of non-reversible sentences could be the result of the agentive non-reversible passive appearing (Table 3) in spontaneous usage. The years from seven through adolescence appear to be important in gaining control of the passive. Baldie suggests that the change in passive use beginning at age seven could be related to the attainment of concrete operations.

CONCLUSIONS

There are several important conclusions that can be drawn, specifically about the passive, and more generally about the language acquisition process.

Language acquisition is not complete by middle childhood. Although the children's passives were syntactically well-formed at a very early age, they appear to be semantically very different from adult passives. It seems appropriate to quote Wepman and Hass (1967:2), speaking of the protocols on which this study was based: "Even the production of sentences which are perfectly 'grammatical' may well have different bases in a young child than in a linguistically sensitive adult."

Individual differences exist in language learning 'strategies.' This

study adds to the growing number of studies showing very different approaches to language. There are probably other ways of acquiring the passive (see note 4); this study deals with what are probably the more common approaches.

Children use analogy to learn grammatical rules. Common sense would lead us to this conclusion, but it is nonetheless satisfying to find evidence of children generalizing from analogous constructions.

The relationship of comprehension and production is complex. These data are puzzling when compared with earlier comprehension studies (Maratsos 1975; Baldie forthcoming.) Children are able to comprehend and to imitate full passive forms that are not produced spontaneously. Full passives are so infrequent that one is tempted to dismiss this omission in production to sampling error. Yet the absence of agentive non-reversible passives is striking (and statistically significant) in contrast to the relatively equal distribution of agentive and instrumental passives in adult usage. Young children clearly had a preference for certain forms in their spontaneous speech (a preference not in accordance with adult usage.) This was true even when they could understand other forms: Among the two to four year olds in this study, responses to a comprehension task involving passives showed no differences between children who produced reversible passives, those who produced non-reversible passives, and those who produced no passives.

The distinction between semantics and syntax is often arbitrary.

In this case, children's cognitive (or semantic) categories of reversibility and type of causation determined when a syntactic construction could apply.

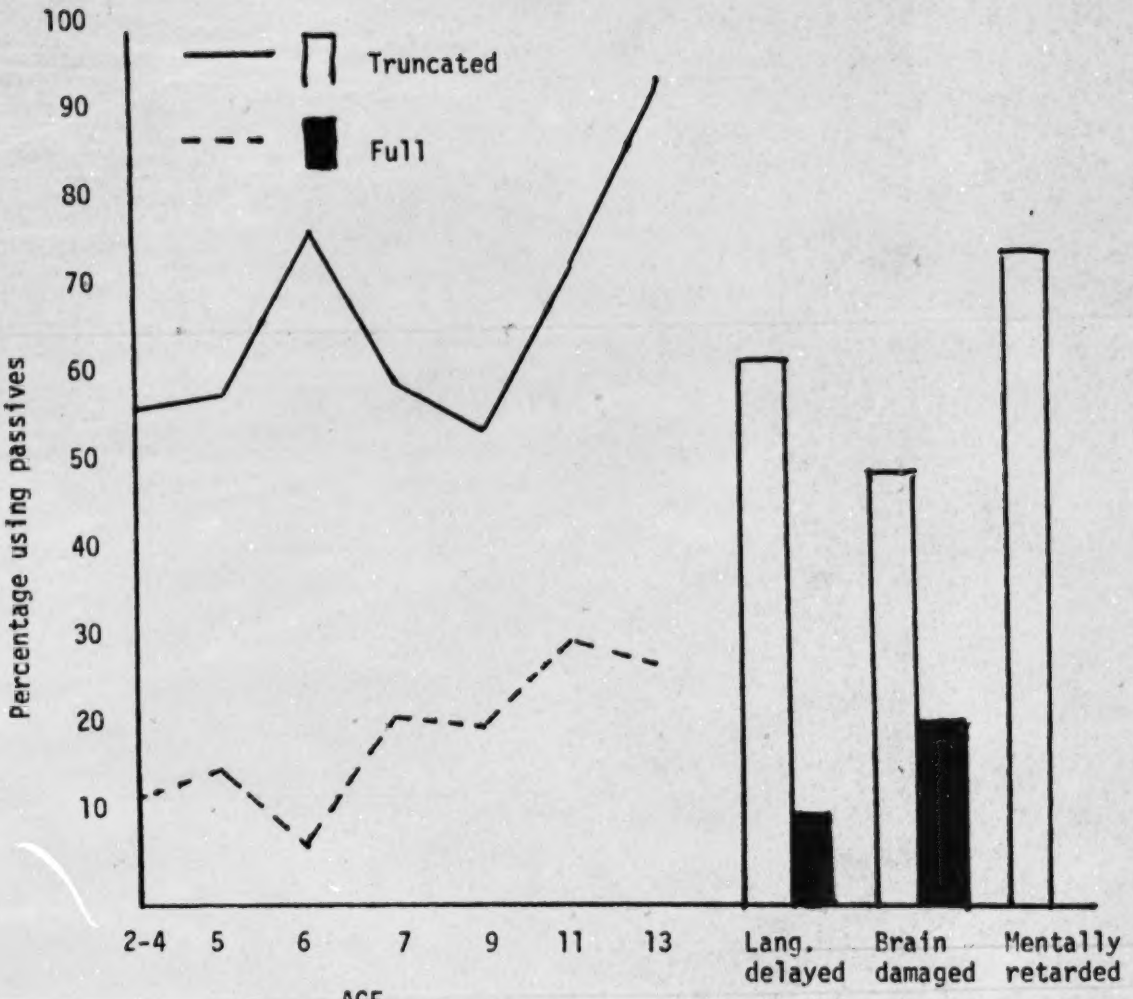

Figure 1. Percentage of children using full and truncated passives.

TABLE 1 - Children's use of prepositions

	Two-four year olds	five-thirteen year olds
'by' followed by animate NP	7	43
'by' followed by inanimate NP	18	14 *
'with' followed by animate NP	0	0
'with' followed by inanimate NP	0	12
'from' followed by animate NP	0	6
'from' followed by inanimate NP	6	3
'of' followed by animate NP	0	0
'of' followed by inanimate NP	0	2
'for' followed by animate NP	0	0
'for' followed by inanimate NP	0	1
'ta' followed by inanimate NP	1 (Lamp got breaked ta ball)	0
TOTAL	32	81**

*p<.10
** 65% of the full passives were produced by boys, p<.05.

TABLE 2 - Adults' use of prepositions

	'by'	'with'	'from'	other
Fill-in the blanks				
Agent present in picture				
_____the ball.	88	63	2	5
_____the boy.	152	0	1	5
Agent absent in picture				
_____the ball.	84	17	3	4
Spontaneous *				
Agent present in picture				
ball as logical subject in Ss' sentence	29	12	1	1
boy as logical subject in Ss' sentence	36	0	0	1
Agent absent in picture				
ball as logical subject in Ss' sentence	93	11	1	0

* More than one-third of the sentences produced were non-passives.

TABLE 3 - Types of passives produced by age

age	Semantically reversible	non-reversible Agentive	non-reversible Instrumental
2-4	15	0	17
5-7	10	0	9
9-13	21	15	14
Lang. delayed	4	0	1
Brain injured	3	0	2
Mentally retarded	0	0	0
TOTALS *	53	15	43
			58

*Two passives were unclassifiable because the first NP was inaudible.

FOOTNOTES

[1]Data from the youngest children are from part of my doctoral dissertation, "Language Development: a Cross-methodological study," The University of Michigan, 1975. I am grateful to Terry Horgan, Wilbur Hass, John Lawler, Klaus Riegel, Michael Maratsos, and John Miyamoto for comments on an earlier draft of this paper.

[2]I am deeply indebted to Wilbur Hass for providing me access to these data.

[3]For a fuller discussion of the procedure, see my dissertation.

[4]Bowerman (1976) reports spontaneous errors produced by her children on sentences involving causality. She finds that prepositions that are appropriate for marking the cause in a certain type of sentence show up substituting for other prepositions in other sentences. For example, she found full passives incorrectly marked with 'from', as in (1):

(1) He keeps getting knocked over...FROM some people.

In addition 'from' was occasionally used to mark instruments as in (2) and in sentences where adults would use 'of' as in (3):

(2) I cleaned it up FROM my mouth.

(3) I'm full FROM popcorn. (of popcorn)

After age 4:2, she reports that prepositions that mark instruments begin to get all mixed up as in the following examples:

(4) I just eat it BY my spoon.

(5) He got punished WITH the teacher--BY the teacher spanking him hard.

(6) The wall will get nice and clean OF this bubble stuff.

(7) They got all scratched up OF rocks.

(8) Sometimes Eva needs to be feeded WITH you because she doesn't eat.

Bowerman's children apparently were not acquiring the passive in the same way as children in the present study, but they were attending to some of the same things: instruments and agents, causal relations, and prepositions.

[5]The category of relations to which they applied passives may be semantically related to the "middle" passive. Baldi (1974) describes the traditional formulation of the Indo-European Middle Voice:

> The Middle, then, is the voice used when the subject has some special interest in the action of the verb, or when his degree of involvement in the action specified by the verb is of a highly personal nature. With the Active, the agent is simply agent: with the Middle, the agent is somehow "inside the process" or action identified by the verb. (p.18)

This is similar to the notion of "mutual activity."

[6]Interestingly, in some languages the passive does not involve a word-order reversal. Johnson (1974) gives an example from Hindi:

(1) ram ne motar calaī

Ram car drove

"Ram drove the car."

(2) ram se motar celaī gaī

Ram by car was driven

"The car was driven by Ram."

The fact that in some languages agent and object do not reverse in the passives indicates that such a hypothesis is a reasonable one for a language learner to make.

The child might not 'think' s/he is forming a passive: The child could think 'by' is a grammatical morpheme such as 'wa' or 'o' in Japanese.

(3) Shōnen wa bōru o utta

Boy ball hit (past)

(grammatical morpheme marking the subject) (grammatical morpheme marking the object)

[7]A second point of interest is whether reversed reversible passives are an example of "form before meaning." Ruth Weir (1962) recorded her child playing with language in his crib before going to sleep. The following are some of her examples of his experimenting with grammatical structure:

> What color--what color blanket--what color mop--what color glass.... Not the yellow blanket--the white....It's not black--it's yellow.... Not yellow--red....Put on a blanket--white blanket--and yellow blanket--Where's yellow blanket...Yellow blanket--yellow light.... There is the light--Where is the light--Here is the light....Fix the music--music is fixed....Cobbers crossed the street--Cobbers always cross the street....Anthony write--Pencils always writing. (p. 19)

these subjects, like Weir's child, seem very sensitive to form. Not all children seem this sensitive to form, but sensitivity to form does appear to be a general approach to language learning. For example, Bloom (1970) discusses a syntactic approach of one of her subjects, Eric, versus the more semantic (or relational) approach of Kathryn and Gia:

> It appeared that Eric's earliest strategy for language learning involved seeking constant features in the speech he heard--forms with both constant substantive meaning and constant syntactic function. Eric organized linguistic structure around such superficial constant features with a focus on the formal patterns or shapes of constructions...

Children forming reversible passives may have focused on the recurrence of the morpheme 'by' rather than the relationship of agent and object.

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